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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hideki Uchida

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EXAMINER

CAZAN, LIVIUS RADU

ART UNIT

PAPER NUMBER

3729

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,779	Applicant(s) UCHIDA ET AL.	
	Examiner LIVIOUS R. CAZAN	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) 23 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-21 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :6/13/06;12/5/07;4/9/08;10/29/08.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 13-22, in the reply filed on 9/28/2009 is acknowledged.
2. **Claims 23 and 24** are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/28/2009.

Drawings

3. Figure 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 16 and 19 are objected to because of the following informalities: "inner" in claim 16, line 5 is incorrect. The claim should, for example, recite --is positioned more inwardly than the-- or --is positioned inwardly of the--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 14, 15, and 17-19** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. **Regarding claim 14**, the phrase “the suction nozzle is equipped with the component mounting head” (line 6) renders the claim indefinite. Claim 13 is directed to a mounting head comprising a suction nozzle. How, then, can the suction nozzle be equipped with the mounting head?

8. **Regarding claim 17**, the phrase “the tip end portion of the projecting member” lacks proper antecedent basis, as no such structure is recited in claim 13, from which claim 17 depends. The recited tip end portion and projecting member are not, as claimed, in any way associated with the structure already recited in claim 13, and, therefore, could be located anywhere and be part of any device.

9. **Regarding claim 19**, the phrase “the multiplicity of depressed/projected portions” lacks proper antecedent basis, since claim 16 recites no such portions.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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11. **Claim 13** is rejected under 35 U.S.C. 102(a) as being anticipated by Aizawa (JP2003127082A).

12. Aizawa discloses a component mounting head in which a component (9) is sucked and held and the sucked-and-held component is placed at a component mounting position in a board and then the suction and holding of the component is released, by which the component is mounted onto the component mounting position, the head comprising: a suction nozzle (1) including a suction-and-holding face (surface of lower end of the nozzle, Fig. 4) for sucking and holding the component, the suction-and-holding face having a suction hole portion which is integrally formed of a generally circular-shaped hole portion (central element 6) formed with an axial center of the suction nozzle, and a plurality of end-portion extended portions (five of the remaining elements 6) formed by partly extending end portions of the circular-shaped hole portion in five radial directions thereof so as to extend in an identical configuration along the five directions radially arranged from the end portions of the circular-shaped hole portion at a generally uniform angular pitch, and which serves to suck up the component being in contact therewith.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. **Claims 13-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seno (US4794689) in view of Aizawa.**

15. Seno discloses a component mounting head (6), wherein a suction nozzle (9) is enabled to suck and hold at a component extraction position (S1), each of components fed from a component feed cassette (22) in which a plurality of the components are accommodated and which feed out the accommodated components along a component feed direction so that the components are positioned at the component extraction position so as to be feedable, and *the suction nozzle is equipped with the component mounting head (see rejection under 35 USC 112, 2nd paragraph).*

16. However, Seno does not disclose a suction nozzle as claimed in claim 13, and wherein the component feed direction of the component feed cassette is made coincident with an extending direction in which one of the end-portion extended portions is extended.

17. As described above, Aizawa discloses such a vacuum nozzle as in claim 13.

18. At the time the invention was made, one of ordinary skill in the art would have found it obvious to modify Seno to use a nozzle such as that of Aizawa, in order to take advantage of the benefits of this nozzle over conventional types. See the abstract of Aizawa. Moreover, it should be noted that, inherently, the component feed direction of the feed cassette would be coincident with an extending direction in which one of the end-portion extended portions is extended.

19. **Regarding claim 15**, given a hole diameter d of the circular-shaped hole portion, a diameter of an outer circumferential end portion of the suction-and-holding face (as

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now provided by Seno in view of Aizawa) is a little over $3d$, i.e. *approximately* $3d$, a width of each of the end-portion extended portions is $1d$, i.e. *approximately* $0.4d$, and a diameter of an imaginary circle interconnecting outer ends of the respective end-portion extended portions is *approximately* $2d$, depending on the radius of the chosen imaginary circle.

20. **Regarding claim 18**, the suction-and-holding face will, inherently, have at least a few depressed/projected portions of *about* 10-20 microns in depth/height.

21. **Claims 13, 16, 17, and 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa in view of Kanai (JP2002307359A) and vice versa.

22. Aizawa discloses the same invention as in claim 13, above, but does not disclose the features claimed in claims 16, 17, and 19-21.

23. **Regarding claim 16**, Kanai discloses a suction nozzle comprising: a projecting member (28) which is inserted and placed within the generally circular-shaped hole portion, for sliding between an accommodated position (see Fig. 6) where a tip end portion (29) of the projecting nozzle is positioned inwardly of the suction-and-holding face, and a projective position (see Fig. 3) where the tip end portion is projected from the suction-and-holding face; and a biasing member (21) for normally biasing the projecting member toward the projective position. **Regarding claim 17**, the tip end portion of some projecting member is formed from a semiconductor ceramic. See rejection under 35 USC 112, 2nd paragraph. **Regarding claim 19**, see the discussion regarding claim 18, above and the rejection under 35 USC 112, 2nd paragraph. **Regarding claim 20**, the mounting head of Kanai further includes an auxiliary suction

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member (22) which is formed from an elastic material and which has an inner circumferential end portion placed in close contact with an outer circumferential portion of the suction nozzle (see figures), and an outer circumferential end portion (72) formed so as to project outward of a circumferential portion of the suction-and-holding face and placed at a position generally equal in height to the suction-and-holding face or slightly backward of the suction-and-holding face (see figures). **Regarding claim 21**, the suction nozzle includes an auxiliary suction member fitting portion which is set at an outer circumferential portion thereof so that the inner circumferential end portion of the auxiliary suction member is attached thereto detachably therefrom, and the auxiliary suction member is selectively attached to the auxiliary suction member fitting portion depending on size of the component to be sucked and held (see Fig. 7 and compare with Applicant's figure 11).

24. At the time the invention was made, one of ordinary skill in the art would have found it obvious to combine the teachings of Aizawa and Kanai, to obtain a mounting head as claimed, in order to take advantage of the features offered by both types of nozzles. In particular, a projecting member such as in Kanai would pass through the central element 6. The other features of Kanai would be on the outside of nozzle 1 of Aizawa.

Allowable Subject Matter

25. **Claim 22** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIVIUS R. CAZAN whose telephone number is (571) 272-8032. The examiner can normally be reached on M-F 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DERRIS H. BANKS can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729

/L. R. C./ 1/15/2009
Examiner, Art Unit 3729